TITLE:

"A COMPARITIVE SCANNING ELECTRON MICROSCOPIC EVALUATION OF INTRA-CANAL SMEAR REMOVAL ABILITY OF DIFFERENT CONCENTRATIONS OF MORINDA CITRIFOLIA, 5% SODIUM HYPOCHLORITE AND 10% CITRIC ACID: AN IN-VITRO STUDY"

ABSTRACT:

Aim: This study aims to compare the intracanal smear removal ability of solutions of various concentrations of Morinda citrifolia, 5% sodium hypochlorite and 10% citric acid when used in specific irrigant protocols. **Methods**: Eighty two mandibular premolars were selected, standardized, canals prepared to Protaper gold Size F2. Samples were divided into control [I-Normal saline, II-17% EDTA] and experimental (Group III, IV, V, VI,VII, VIII,IX,X and XI) groups. The initial rinse solution volume was [8ml] ie., Morinda citrifolia[MC], 5% sodium hypochlorite and 10% Citric acid, and final rinse solution [5ml] 17% EDTA. Samples were dehydrated, split bucco-lingually, sputter coated and examined in Scanning Electron microscope. **Results**: **Group III** had the least smear and debris values at all thirds of the root canal with mean values of **2.5 ± 0.32 and 2.4 ± 0.2 respectively. [Table 6 chart VI]** The **Group IV** presented the least amounts of erosion among experimental groups at all thirds of the root with a mean value of **1.1 ± 0.05 [Table 6 chart VI].** Among the experimental groups, **Group V** presented with the highest amount of erosion with loss of peritubular and intertubular dentin at all levels with mean values of **1.70 ± 0.25. [Table 6 chart VI]** **Conclusion** : Within the limitations and protocols used in this it can be concluded that the use of 5% Morinda citrifolia as a initial rinse irrigant solution during biomechanical preparation is promising.

Key Words: Smear layer, Herbal Irrigants, initial rinse solutions, morinda citrifolia, scanning electron microscopy.